

Octonema, *Glaniopsis*, *Parahomaloptera*, *Crossostoma*, *Hemimyzon**, *Gastromyzon* (cf. Vaillant, Notes Leyden Mus. xxiv. 1902, p. 110).

EXPLANATION OF PLATE II.

Fig. 1. Hyopalatine and opercular bones of *Leporinus frederici*.

Fig. 2. Ditto of *Prochilodus lineatus*.

Fig. 3. Ditto of *Sternopygus macrurus*.

Fig. 4. Ditto of *Hemiodus kaypleri*.

p, frontal process of mesopterygoid; *pal*, palatine; *pt*, pterygoid; *q*, quadrate; *ms*, mesopterygoid; *mt*, metapterygoid; *hy*, hyomandibular; *sy*, symplectic; *pop*, preoperculum; *op*, operculum; *sop*, suboperculum; *iop*, interoperculum.

III.—*Some Records of Collembola new to England, with Description of a new Species of Onco podura.* By JOHN W. SHOEBOOTHAM, N.D.A.

(From the Cooper Laboratory for Economic Research, Watford, Herts.)

[Plate III.]

DURING the last two and a half years the author has made collections of Collembola from several districts in England, but chiefly from the counties of Hertfordshire, Buckinghamshire, and Staffordshire. A list of the Hertfordshire Collembola was published last year †, since when additional forms have been found. Several species have been found which prove to be new to the English fauna, including a hitherto undescribed form. These records, with references to the original descriptions of the species, are given in the following paper.

Order COLLEMBOLA, Lubb.

Suborder ARTHROPLEONA, Börn.

Family Achorutidæ, Börn.

Subfamily ACHORUTINÆ, Börn.

Genus ACHORUTES, Templ., Lubb.

I. *Achorutes serratus*, Ågr.

Achorutes serratus, Ågren, (1904) pp. 5, 6, pl. i. figs. 5-7.

Loc. Staffordshire.

Identification confirmed by Dr. Ågren.

* *Hemimyzon*, gen. nov., type *Homaloptera formosanum*, Bouleng., pelvic fins 15- or 16-rayed, with extended bases convergent posteriorly, approximating to the *Gastromyzon* structure.

† Collinge, W. E., and Shoebbotham, J. W., "The Apterygota of Hertfordshire," Journ. Econ. Biol. vol. v. pt. 3, pp. 95-132, figs. 1-15 (1910).

2. *Achorutes schäfferi*, Carl *.*Achorutes affinis*, Schäffer, (1900) p. 250.*Achorutes schäfferi*, Carl, (1901) p. 253.

Loc. Hertfordshire.

Genus WILLEMIA, Börn.

Willemia, Börner, (1901 b), pp. 428, 429.3. *Willemia anophthalma*, Börn.*Willemia anophthalma*, Börner, (1901 b) pp. 429, 430, figs. 6-8.

Loc. Buckinghamshire.

Subfamily ONYCHIURINÆ, Börn.

Genus ONYCHIURUS, Gerv., Börn.

4. *Onychiurus affinis*, Ågr.*Onychiurus affinis*, Ågren, (1903) p. 128.

Loc. Buckinghamshire.

5. *Onychiurus furciferus* (Börn.).*Aphorura furcifera*, Börner, (1901 a) pp. 3, 4.

Loc. Buckinghamshire and Staffordshire.

Subfamily NEANURINÆ, Börn.

Genus PSEUDACHORUTES, Tullb.

6. *Pseudachorutes corticicolus* (Schäff.).*Schöttella corticicola*, Schäffer, (1896) p. 176, figs. 34, 62.

Loc. Staffordshire.

Genus MICRANURIDA, Börn.

Micranurida, Börner, (1901 e) p. 702.7. *Micranurida pygmaea*, Börn.*Micranurida pygmaea*, Börner, (1901 e) pp. 702, 703, figs. 6, 7.

Loc. Buckinghamshire.

* The specific name *affinis* had been previously used by Lucas for a species of *Achorutes* from Algeria.

Family Entomobryidæ, D. T.

Subfamily ENTOMOBRYINÆ, Schöff., Börn.

Genus ISOTOMA, Bourl., Börn.

8. *Isotoma violacea*, Tullb.*Isotoma violacea*, Tullberg, (1876) p. 36.*Loc.* Buckinghamshire.

Genus PROISOTOMA, Börn.

9. *Proisotoma minima* (Abslon).*Isotoma minima*, Absolon, (1901) pp. 32. 33.*Loc.* Buckinghamshire.

Genus ISOTOMODES, (Axelson-) Linnaniemi*.

Isotomodes, (Axelson-) Linnaniemi, (1907) p. 129. (Name only, not described.)10. *Isotomodes productus* (Axels.).*Isotoma elongata*, Axelson, (1903) p. 6.*Isotoma producta*†, Axelson, (1906).*Loc.* Staffordshire.

Subfamily ONCOPODURINÆ, Carl und Lebed.

Oncopodurine, Carl und Lebedinsky, (1905) p. 565.

Genus ONCOPODURA, Carl und Lebed.

Oncopodura, Carl und Lebedinsky, (1905) p. 564.

The following generic description is mainly after Carl and Lebedinsky, with a few modifications:—

Antennæ short, 4-segmented, the last segment with sense-bristles. Ant. iii. and iv. not ringed. Postantennal organ externally present or absent. Eyes absent. Prothorax rudimentary, not seen from above. Mesothorax large, not produced over the head, rounded in front. Abdomen iii. and iv. subequal. Furcula strongly developed. Dentes 1-segmented,

* Axelson, in 1906, assumed the name Linnaniemi, but, to avoid confusion between his earlier and more recent publications, he suggests that both names should appear in reference to his works published since 1906.

† The specific name *elongata* having been used by MacGillivray (1896), Axelson renamed the species *producta* in 1906.

not ringed, with chitin hooks, ventrally with scales. Macro very long, similar to that of the *Tomocerinae*, but without basal teeth. Upper claw simple. A clavate hair present on the tibio-tarsus of the second pair of legs, situated about the middle of its length, absent on legs i. and iii. Scales present.

The genus *Oncopodura* was erected in 1905 for a species (*O. hamata*) found in the Sundurlu Cave in the Crimea, in Southern Russia. It was placed in a separate subfamily (*Oncopodurinae*), and this arrangement was used in the systematic works of Wahlgren (1906) and Börner (1906). Except for the original paper, the author has not seen any other records of *Oncopodura*, and Dr. Carl informed him (*in lit.* Nov. 1910) that he did not know of any other published records.

11. *Oncopodura crassicornis*, sp. n. (Pl. III.)

Antennæ short and thick, 4-jointed, slightly shorter than the head-diagonal (as 55 : 62). Ant. i. : ii. : iii. : iv. = 8 : 11 : 15 : 21. All segments covered with short hairs. Ant. iv. with four smelling-hairs placed in a row, without retractile sense-knob. Ant. iii. and iv. not ringed; ii. with one smelling-hair at the distal end; i. broader than long. Antennal organ iii. made up of two stout sense-staffs.

Eyes absent. Postantennal organ present, difficult to see, made up of six smooth somewhat triangular tubercles arranged in a ring (as in *Anurida maritima*), situated lateral and slightly posterior to the base of the antenna.

Thorax i. small, not seen from above. Thorax ii. well developed, rounded in front, but not produced over the head, with a fine sensory hair on each side, over the base of legs ii. (Such hairs are apparently absent from the abdomen.)

Tibio-tarsus of leg ii. with an outstanding clavate hair, situated about the middle of its length, expanded spoon-like at its end. Legs i. and iii. without this hair.

Claw short, without inner or lateral teeth or pseudonychia. Empodial appendage lanceolate, without teeth, more than half as long as the claw-diagonal (as 5 : 9). Prætarsal hairs long, only slightly shorter than the empodial appendage.

Abdomen iii. slightly longer than iv. Ventral tube short, not clavate. A ventral abdominal groove is present for the reception of the furcula. Tenaculum with four retaining teeth.

Furcula long. Manubrium ventrally with scales, dorsally with some simple and feathery hairs. Manubrium : dens : macro = 38 : 24 : 23 (measured ventrally).

Dens 1-segmented, thick at the base, but suddenly diminished in size at about $\frac{2}{5}$ from the proximal end, with several chitin hooks and spines, as follows:—two large hooks at the distal end, inner and outer, both of which overreach the base of the mucro; three smaller, less curved hooks, situated about equal distances apart, on the inner side; one straight spine on the outer side $\frac{2}{5}$ from the proximal end. Dens ventrally with numerous scales, dorsally with several long feathery hairs. A feathery hair of uniform thickness arises at the base on a small tubercle, and a simple short hair is present on the outer side towards the distal end.

Mucro long and slender, with four teeth—apical, antepical, and two dorsal. The relative distances of the teeth from the base are as follows:—17 : 26 : 35 : 39. The proximal dorsal tooth is stout, blunt, and directed towards the proximal end. The mucro is provided with a thin transparent lamella* or “mucronal sheath” which almost encloses it from the base to the second tooth, and a narrow pointed lamella is continued from the outer side beyond the apex of the mucro.

Body-form short and broad. The relative lengths of the body-segments as follows:—

Ant.	Head- diag.	Th.		Abd.					
		ii.	iii.	i.	ii.	iii.	iv.	v.	vi.
55	62	46	33	24	28	34	30	15	12

Hair-covering short and scanty, but the head and body are thickly covered with broad rounded scales.

Colour white.

Length .6 mm.

Loc. Berkhamsted, Hertfordshire; under stones.

Habits. This species was found under stones amongst decaying leaves in a garden at the end of October 1910, and under stones embedded in soil at a place about $\frac{1}{2}$ mile from the first locality in November and December. A single specimen was obtained at the end of February 1911.

They were only found when the ground was moist, and were not very active unless the light was strong, but when the sun was shining on them they quickly jumped away. Specimens were taken in December immediately after a sharp frost.

* These lamellæ are not firmly attached to the mucro proper, as in some of the mucrones they had become detached.

The two species of *Oncopodura* may be distinguished by the following characters:—

O. hamata, Carl and Lebed.*

Antennæ slender, segments as 1:2:3½:4.

Postantennal organ absent (at any rate externally).

Claw with lateral lamella.

Proximal tooth of the mucro slender, pointed, directed towards the distal end.

Manubrium: dens: mucro = 26:13:17.

Abdomen iv. a little longer than iii.

Relative lengths of teeth on mucro from base = 17:34:45:47.

Colour yellowish white.

Length 1·6–1·8 mm.

O. crassicornis, sp. n.

Antennæ thick, segments as 8:11:15:21.

Postantennal organ present, of six tubercles.

Claw without lateral lamella.

Proximal tooth of the mucro stout, blunt, directed towards the proximal end.

Manubrium: dens: mucro = 38:24:23.

Abdomen iv. a little shorter than iii.

Relative lengths of teeth on mucro from base = 17:26:35:39.

Colour white.

Length ·6 mm.

Suborder SYMPHYPLEONA, Börn.

Family Neelidæ, Fols.

Genus NEELUS, Fols.

12. *Neelus minutus*, Fols.

Neelus minutus, Folsom, (1901) pp. 221, 222, pl. ii. figs. 3–11.

Loc. Hertfordshire.

Family Sminthuridæ, Lubb.

Subfamily SMINTHURINÆ, Börn.

Genus SPHYROTHECA, Börn.

Sphyrotheca, Börner, (1906) p. 183.

13. *Sphyrotheca lubbocki* (Tullb.).

Sminthurus lubbocki, Tullberg, (1872) p. 33.

Loc. Staffordshire.

Except for *S. lubbocki*, all the species here recorded are new to the British Isles. A single example of *S. lubbocki* was recorded by Bagnall (1909) from the Kyles of Bute, Scotland.

* The characters here specified are taken from the description and figures given by Carl and Lebedinsky (1905).

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EXPLANATION OF PLATE III.

All the illustrations are of *Oncopodura crassicornis*, sp. n.

Fig. 1. Outline, from the side.

Fig. 2. Right antenna from above, showing also postantennal organ from the side.

Fig. 3. Three terminal joints of the antenna, showing sense-organs.

Fig. 4. Left postantennal organ and base of antenna.

Fig. 5. Mesothorax from the side, showing fine sensory hair.

Fig. 6. Manubrium and dentes from the side. (Nearly all the feathery hairs had been denuded from the dentes.)

Fig. 7. Mucro, with lamellæ, from the side.

Fig. 8. Tibio-tarsus and foot of second leg, showing clavate hair.

Fig. 9. Outline of scale.

IV.—Notes on the Forficularia.—XVIII. *More new Species.*

By MALCOLM BURR, D.Sc., F.E.S., F.Z.S., F.G.S.

Diplatys riggenbachi, sp. n.

♂. Vertex tumidus; occiput depressum, carinulis acutis; pronotum ♂ ♀ breve, pentagonale, postice subangustatum; elytra aëque perfecta; segmentum ultimum dorsale ♂ inflatum; segmentum penultimum ventrale ♂ basi latum, apicem versus angustatum, apice truncatum; forcipis braccia ♂ basi dilatata ac deplanata, tum attenuata, fortiter arcuata.

	♂.	♀.
Long. corporis	13 mm.	10·5-12·5 mm.
„ forcipis	2 „	2 „

Size relatively large; general colour rust-red.

Antennæ fulvous, with about 22 segments, third not very long, fourth and fifth quite short, rest slowly lengthening; cylindrical.

Head broad and depressed; sutures distinct; in the ♂ vertex tumid, occiput depressed, postocular keels sharp; in the ♀ vertex and occiput similar, postocular keels shorter; eyes prominent.